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# THE USES OF ASTROLOGY\*

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*To the memory of Abe Sachs*

In addition to celestial omens which are documented, at least for lunar eclipses, as early as the Old Babylonian period, a number of other texts attest to Mesopotamian interest in celestial phenomena and in the stars and their influence upon the sublunar world. Although far from being developed into an astrology as we know it from the Greeks, astral influence was sought in various areas of Mesopotamian science. The *haruspex* turned to the stars asking that they place reliable omens in the exta of the lamb, and there are also some indications that parts of the exta examined for divinatory purposes were associated with planets and constellations. It is especially the medical texts which reveal the importance attributed to astral influence in enhancing the efficacy of the treatment.

“WE HAVE THE OBLIGATION to use the original works, to learn the languages in which they are written, to determine their date, to seek to establish the date of the changes they have undergone, of the stone or other monuments that mention them, of the peoples whose Law they have become; the obligation to follow the migrations of these peoples, to know well the land where they settled, even the names of the places where they lived; to observe their skills in the sciences and the arts; to study their morals, their politics. All this leads to the knowledge of the mind of man, and pertains to the History of Ideas. . . . From this point of departure one will note that these ideas caused changes in the languages of the peoples among whom they originated, and that these changes spread to the languages of the nations subjugated by these peoples or who subjugated them. . . .

“These general considerations are sufficient to show that the history of ideas, of human thought, presupposes the knowledge of languages, of antiquities, of geography, ancient and modern, of chronology—sciences that the false erudite covers with a varnish of pedantry because, afraid of the immensity, of the complexity of

the scaffolding, he does not have the fortitude to enter the edifice itself.

“What, then, are the means to fathom such an important, such a fascinating subject? . . . We need professional scholars, even traveling scholars. But how would they travel? . . . One way would be to establish academies, if I may say so, ambulatory academies. . . . I envisage this body of traveling scholars as comprising eighty academicians. . . . For Asia, I place two in Constantinople, two in Baghdad, two in Isfahan, two in Delhi, two in Astrakhan, four in Great Tartary, two in Tibet, two in Chinese Tartary, and two in Kamchatka; starting out again by the southwest, two will settle in Peking, two in Canton, two in Malacca or Siam, two in Patna, two in Bengal, two in Pondichéry, two in Ceylon, two in Mahé, two in Ponanni, two in Surat, two in Basra. I take for granted that the academician knows Hebrew, some modern languages of Europe, ancient history, a little theology, metaphysics, and astronomy. . . . The Academicians will write the history of these languages; they will distinguish what is in the ancient writings from what is simple tradition. . . . These preliminaries granted, they will work on the general history of the land.”<sup>1</sup>

Well, we may not go about it in exactly the same way as Anquetil du Perron advocated in his Preface to the *Zend-Avesta*, but it is as abundantly clear to us today as it was to him in 1771 that no single scholar can master all the languages which reveal the nature of

\* Presidential address delivered at the 194th meeting of the American Oriental Society, March 25–28, Seattle, Washington. This printed version reproduces the address as delivered with only minor changes and the addition of occasional footnotes. A much fuller study of Babylonian astrology will appear in my forthcoming monograph which is now in preparation.

<sup>1</sup> Anquetil du Perron, *Zend-Avesta* 1/1 (1771), pp. x–xiv.

man and the cultural history of mankind, and that such research can only be carried out by an academy, although 70 more years had to pass before such an academy, advocated by Anquetil du Perron in 1771, was founded in the New World. This body, that I have the honor to address tonight, though not an academy by name, has indeed accomplished many of the goals set forth by that farsighted scholar who made the Avesta known to the West.

Yet many of the languages and literatures of the mysterious Orient remain imperfectly described and insufficiently studied. Academies and learned societies still play a role in expanding our knowledge, by bringing together men and women with various interests so that they can listen to—provided there is no conflict in scheduling—the ideas and findings of their fellow-scholars. It follows that, with experts of various disciplines available and present, one need not and ought not dabble, without sufficient knowledge and adequate background, in matters belonging to a neighboring—even if friendly—discipline. And yet that is what I will dare to do tonight.

Of all the various ideas that crisscrossed our mysterious Orient there is one in particular that spanned it from the Near East, ancient and medieval, to Iran, India, and even further East into Asia, though I will have to stop following the road long before that, and that is the preoccupation with the heavenly bodies and other celestial phenomena, and with the impact of their behavior on the sublunar world. The study of these concerns, incorrectly but commonly called astrology, has of course long been the domain of a number of scholars. Their work, to mention here only David Pingree's, has cleared up precisely these interconnections between the ancient Near East and adjacent cultures to the east and the west, and the routes they followed in Greek and Arabic language transmissions.

From the Assyriologist's vantage point, the search for comparative material is frustrating. Only at the very end of the cuneiform tradition does one find the mathematical models for computing celestial phenomena that culminated in Greek astronomy, or evidence for horoscopes. We still mourn the untimely death of the master of these late cuneiform texts, Abe Sachs. As a philologist, with no expertise in mathematics or astronomy, I must deal with earlier cuneiform material.

Although the germ of the methods developed by the Greeks may be present in the vast number of omen tablets dealing with celestial phenomena, no direct line of descent is attested in the texts known to me. Nor do the Babylonian omen collections exhibit the colorful imagination of Indian omens. Most of the Babylonian celestial omens, systematized—as all Babylonian omens

were—in the first millennium B.C., but certainly compiled much earlier, are arranged in topical sequences. They are subdivided into tablets and sections according to particular stars or planets, or according to some phenomenon affecting several of these, and thus they are not unlike the topically arranged Sumero-Akkadian word lists.

The diviner, for whose use these omen collections were written down, drew from such handbooks predictions for the affairs of the state. But the Mesopotamian man who was not a diviner or *mathematikós*, that is, an astronomer as well as a mathematician, who looked up at the night sky filled with points of light, some changing their relative position to each other, some streaking through the sky, and some steady, so that their configurations evoked such familiar shapes as a lion or a scorpion, must also have thought that this heavenly display, this heavenly writing, was there for a purpose. Most importantly, this purpose was to warn men of impending events, just as it was the purpose of signs observed on earth; to catalog and interpret these warnings was the science to which the diviners applied themselves. But surely the stars must have had an impact on terrestrial events in other ways too. For Mesopotamian man divination from celestial phenomena was therefore only one use of astrology.

Even this divination was on two levels. The scholarly level culminated in the seventy tablets of the omen series *Enuma Anu Enlil*, which comprises omens derived from the moon, the sun, weather phenomena, and the stars and planets, but which seems to have evolved from the observation of eclipses, both lunar eclipses for which we have Old Babylonian sources, and solar ones, which are preserved on second-millennium tablets from Boğazköy where the Hittite scribes copied them from now lost, possibly Old Babylonian originals. On a more popular level, so that such omens were rarely written down<sup>2</sup> and never found their way into the scholarly compendia, shooting stars and the direction from which they approached the observer were used to make predictions, or rather to elicit a yes-or-no answer to a query.

It is perhaps to these popular forms of divination, expecting an answer in terms of yes-or-no, success or failure, that the second use of astrology is more closely related. In this framework, stars and planets, as powers which have influence on man and his endeavors, are invoked as gods. Those invoked are not only, and understandably, the moon god, Sin, and Venus, who as

<sup>2</sup> See E. Reiner, "Fortune-Telling in Mesopotamia," *JNES* 19 (1960) 28f.

morning star and evening star was the mistress of stars (*bēlet kakkabī*), but also a variety of stars and constellations, such as the Pleiades, Sirius, Orion, and others. Even before these stars were associated with particular deities, such as Sirius with Ninurta, the constellations of the starry sky were clearly set off, as gods of the night, from the other deities who retire at night into their bedchambers in heaven, leaving the familiar figures of the Dragon, the Hydra, or the Big Dipper to keep watch.

These gods of the night did not reveal the future directly through their obscurations, conjunctions, and other observable astronomical phenomena. Rather, they exerted their influence on the outcome of the most ancient and most widely practiced Mesopotamian divinatory technique, extispicy. In his prayer to the stars before his dawn extispicy, the diviner asks that they place a reliable sign in the exta of the sheep to be inspected. While the two long-known Old Babylonian prayers, and their Standard Babylonian parallels,<sup>3</sup> address a group of stars as “gods of the night,” one of two recently published Old Babylonian prayers from Tell ed-Dēr<sup>4</sup> addresses specifically the morning star, Venus.

O my lord Ninsianna,  
accept this offering,  
be present in my offering, and place in it a portent of  
well-being and life for your servant Ur-Utu.

That it is the morning star and not the evening star which is designated in this prayer by the name Ninsianna appears from the fact that the address is to a male deity, precisely the gender of Venus as morning star, while as evening star Venus is female. Another morning star addressed by the diviner, in a more recent prayer, is Sirius at its rising.<sup>5</sup>

While it is not possible to find exact correlations between the prayer to a star or planet and the star's influence on the outcome of the extispicy, other sources show that celestial phenomena were indeed interpreted as having a bearing on it. Certain apodoses of the celestial omen collection predict that the query of the haruspex will be answered, and others, that it will not.

<sup>3</sup> A. L. Oppenheim, “A New Prayer to the ‘Gods of the Night’,” *Analecta Biblica* 12 (1959) 282–301.

<sup>4</sup> Léon de Meyer, “Deux prières *ikribu* du temps d’Ammī-šaduqa,” in *Zikir Šumim: Assyriological Studies Presented to F. R. Kraus* (Leiden: Brill, 1983) pp. 271–78.

<sup>5</sup> E. Burrows, “Hymn to Ninurta as Sirius,” *JRAS Cent. Supp.* (1924) 33–40.

Reliance on the stars to authenticate an extispicy is a concept diametrically opposed to what we have been accustomed to expect. It has long been known that the genuineness and the reliability of a portent used to be checked by submitting it to the test of extispicy, a test used for the prophecy of ecstasies in Mari, a test also used—though it is mentioned by allusion only—for the portent of the lunar eclipse in 714 B.C. during Sargon's eighth campaign,<sup>6</sup> for the portents given by the planet Jupiter to Esarhaddon,<sup>7</sup> and, most clearly described, and also most often discussed, for the portent of the lunar eclipse under Nabonidus.

As you know, a lunar eclipse occurred on the 13th of the month of Ulūlu, that is, on September 26, 554 B.C. In the chapter on lunar eclipses of the compendium of celestial omens, an eclipse on the 13th of Ulūlu signified that the moon god requested a high priestess. The interpretation of the experts in celestial divination was, however, not enough. Nabonidus ordered an extispicy, which indeed confirmed the portent of the lunar omen. Nabonidus probed further. In a second extispicy he asked whether he ought to dedicate a princess of the royal family as priestess of the moon god, and the omen from the exta said no. Finally, in a third consultation, he inquired whether his own daughter was suitable for that office, and this time the answer from the exta was yes. Only then did Nabonidus install his daughter in the Moon god's temple at Ur.

Not so in the cases I was just discussing. The prayers of the haruspex to the stars testify to the converse procedure, that of seeking the assurance of a reliable answer, through the favorable intervention of the celestial bodies, to a question asked through extispicy:

- 5 The gods and goddesses of the country—  
Šamaš, Sin, Adad and Ištar—  
have gone home to heaven to sleep,  
they will not give decisions or verdicts (tonight).

- Night has put on her veil—  
10 the palace is quiet, the countryside does not utter  
a sound—  
(Only) the (lonely) traveler calls to the god (for  
protection)  
(and even) the one for whom the (divine) decision  
(is sought) remains asleep—  
Šamaš, the just judge, the father of the under-  
privileged,  
has (likewise) gone to his bedchamber.

<sup>6</sup> *TCL* 3 318, see A. L. Oppenheim, “The City of Assur in 714 B.C.,” *JNES* 19 (1960) 137f.

<sup>7</sup> Borger *Esarh.* 17f. Bab. Ep. 13–14 with p. 81ff. r. 2–27.

- 15 May the great gods of the night:  
 shining Fire-star,  
 heroic Irra,  
 Bow-star, Yoke-star,  
 Orion, *Mušḫuššu*-star,  
 20 Wagon, Goat-star  
 Goatfish-star, Serpent-star—  
 stand by and  
 put a propitious sign  
 on (the exta of) the lamb I am blessing (now)  
 25 for the extispicy I will perform (tomorrow)!<sup>8</sup>

In the prayers of the haruspex, especially in the first-millennium compositions that continue the Old Babylonian tradition and occasionally reflect the poignancy of an individual mood so as to create a lyrical poem in the modern sense, as was shown by Oppenheim in his treatment of such a prayer to the gods of the night, the stars in their multitude, even stars so small that the eye cannot see them, are to exert their benefic influence on the extispicy.

It is perhaps the ritual setting and the poetic mood—the appeal to the stars as the gods of the night, the address to the night as the veiled bride—that has overshadowed the astrological connections of these prayers. Moreover, astral influence notwithstanding, it is still the expert, the diviner, who will interpret the features and marks of the exta of the lamb he is to slaughter at dawn, using the handbooks correlating the appearance of the exta with specific predictions and clay models that similarly associate parts and deformations of the liver with a specific prognosis. Nevertheless, the fact that astral connections with these parts of the liver were also made part of the diviner's corpus, though seemingly much later, is now attested in a so far unique text from pre-Seleucid Uruk. This small tablet (the knowledge of which I owe to E. von Weiher) lists the parts of the liver, in the order that they are normally examined, and equates each with a god, a month, and a planet or constellation. For example:

the "path" is Šamaš; month Ajaru; Taurus;  
 the gall bladder is Anu; month Tašritu; Libra.

That this text, though the sole surviving exemplar, represents a definite tradition in the development of extispicy and is not some oddity, is suggested by the fact that each of its equations is followed by a commentary—unfortunately often opaque. This

<sup>8</sup> Oppenheim, "A New Prayer to the 'Gods of the Night,'" p. 296.

branch of hepatoscopy—that might be dubbed hepato-mathematics, a term that in an uncanny way also evokes Landsberger's term "liver-mathematics" for that branch of liver omens that resort to numerical determinism—this hepato-mathematics, then, so far has no exact parallel within Mesopotamia or even outside it. In Hellenistic Egypt, however, as might be expected, there is evidence for the association between stars and planets and parts of the exta. Such evidence is found, so David Pingree tells me, in the Apotelesmatica of Hephaestion.<sup>9</sup>

Hellenistic parallels for another type of cuneiform text have been pointed out long ago. In a group of Late Babylonian texts the signs of the zodiac—or rather, of a micro-zodiac of 2½ degrees for each sign—are put in relation with certain terrestrial objects. The twelve sections are disposed in some of the tablets as cases of a grid; since the edition of the pertinent texts by Weidner in 1967,<sup>10</sup> a few additional fragments belonging to the same type of text have been identified. Especially striking evidence for the relationship between the Babylonian and the Hellenistic texts is the fact that the Late Babylonian texts assign a tree, a plant, and a stone to each sign, as do the Greek.

In an unpublished paper presented at the Rencontre Assyriologique Internationale in Leiden in 1962, Oppenheim disputed the validity of posing the question of the relation between the Hellenistic and the Babylonian texts in terms of privacy. The similarities are due, in his opinion, to the great deal of intercommunication prevailing in the Near East in the first millennium, an intercommunication served, according to Oppenheim, by the ubiquitous Arameans. Rather than evidence for direct borrowing, Oppenheim found in these texts a sign of the vitality of the inner-Mesopotamian divinatory tradition. For not only were trees, plants, and stones associated with the zodiacal signs in the Babylonian tablets, as they were in Hellenistic Egypt, but to each set were added admonitions from other mantic material, such as the hemerologies, as well as material, with a less transparent purpose, from such scholarly sources as lists of gods or temples. Thus, to quote Oppenheim, these late texts represent "an ingenious attempt toward synthesis in the field of

<sup>9</sup> David Pingree, ed., *Hephaestionis Thebani Apotelesmaticorum libri tres*, vol. I (Leipzig: Teubner, 1973) III 6, 14–17.

<sup>10</sup> E. G. Weidner, *Gestirn-Darstellungen auf babylonischen Tontafeln* (Vienna: Austrian Academy of Sciences, 1967); for additional fragments see W. Mayer, *Bagh. Mitt. Beiheft 2* p. 19, Nos. 78–79, and W.20030, 133, cited H. Hunger, "Noch ein 'Kalendertext,'" *ZA* 64 (1975) 43.



divination. Here, an effort is made to unite such different aspects as age-old magic practices, astrological timing, and ritualistic restrictions, and to make it available in co-ordinated table form." Oppenheim's assessment of the vitality of the inner-Mesopotamian divinatory tradition is now confirmed by the just discussed Uruk text which testifies to the inclusion of extispicy in this synthesis.

The purely hemerological tradition itself attests an astrological orientation. Only certain days, of course, are propitious for making offerings to some god. But, in addition, hemerologies also prescribe, though more rarely, ritual acts directed toward certain stars, as was discussed as early as 1915 by Landsberger in his *Kultischer Kalender*. The most commonly mentioned are the star of the goddess Gula, that is, Lyra, and the Wagon star, our Big Dipper, two constellations that we will meet repeatedly later.<sup>11</sup>

As for the trees, plants, and stones correlated with the zodiacal signs in the Seleucid cuneiform texts, their healing and magic properties are described in much earlier Mesopotamian lists of stones and plants. I mean here not those lexical lists that give Akkadian equivalents to Sumerian stone and plant names, but other types of lists to which the compendium listing the exorcist's handbooks<sup>12</sup> refers as "tablets about stones" and "tablets about plants" (DUB NA<sub>4</sub>.MEŠ and DUB ū.MEŠ).

I couldn't say whether the designations "tablets about stones" and "tablets about plants" refer to the pharmaceutical list that we call, from its incipit, Uruanna, or to the tablets called, again from their incipits, *abnu šikinšu* and *šammu šikinšu*, or yet to a third type, the lists of amulet stones. The *šikinšu*-tablets have an identical format. Each section begins with *abnu šikinšu* "the stone whose appearance is," respectively *šammu šikinšu* "the plant whose appearance is"; continues with the comparison "like the such-and-such stone (or plant) but . . ."; then follows a description of how it differs from the named stone or plant and, finally, its name. Under some entries these *šikinu*-tablets add a remark concerning the efficacy of the stone or plant described.<sup>13</sup>

<sup>11</sup> Certain other rituals, which seek to avert the evil portent of a lunar eclipse, also prescribe prayers to constellations—UD.KA.DU<sub>8</sub>.A and GÍR.TAB (CT 4 4:21 and 33)—but their context, as they deal with celestial phenomena, does not transcend a single mode of divination.

<sup>12</sup> Also called the "Leitfaden der Beschwörungskunst" (KAR 44).

<sup>13</sup> I shall deal elsewhere with the relation between these texts and the later lapidaries, herbals, and bestiaries.

The lists of amulet stones, on the other hand, end each enumeration of a group of stones with directions for the mode of application, using, by the way, the same term, "to tie on,"—for example, on the right hand—as does Pliny when he describes the use of a stone, a term that only Pliny's modern translators render as "worn as an amulet."

The use of mineral as well as vegetable and animal substances as amulets is, in Babylonian texts, normally separated from their therapeutic use as salves, powders, or potions. Such applications are spelled out in the medical texts. It is in medical texts prescribing the preparation of medicinal substances that the benefic astral influences come into play, and this is the third use of astrology that I want to mention tonight.

But don't make fun of me, please, as Galen did of Pamphilus, when he said about Pamphilus' book on plants that it is obvious that he is only a grammarian and has never seen the plants he is talking about.<sup>14</sup> I too am a philologist.

More practical was the Babylonian physician of the "practical" or, with Bob Biggs's term, the "therapeutic" school. He was concerned with prescribing a treatment in a prescription which included not only the indication for administering the medicine but also its preparation. He was not trained as an expert in divination. Therefore, his concern with the celestial bodies was not the portents they give but their power and influence on his activities, a science known in Hellenistic times as "catarchic astrology." Catarchic astrology provided rules for choosing the most auspicious moments for a particular undertaking. In Babylonian medical texts just as in other Babylonian scientific texts—we do not find a system of rules or theoretical expositions, but we do find the judicious use of the stars' influence, and appeals directed to them to exert such benefic influence.

Since the physician was his own herbalist,<sup>15</sup> a substantial part of the recipe is taken up with the preparation of the medication. Herbalism is, as we know from ancient sources and from folklore, a risky business; it has to be hedged with many precautions. The herb has to be picked at an auspicious moment, such as a moonless night, and in the proper manner, for example, without using an iron tool, by drawing a circle around the plant, and even propitiating it. The ingredients have to be prepared by a certain type of

<sup>14</sup> Galen, *De simplicium medicamentorum* . . . I 793 (vol. XI, ed. K. G. Kühn, (1826–), cited Hopfner, *Griechisch-Aegyptischer Offenbarungszauber* § 479, also idem., *Pauly-Wissowa* XIV 322f.

<sup>15</sup> W. Farber, "Drogerien in Babylonien und Assyrien," *Iraq* 39 (1977) 223–28.

person: it is often a virgin boy who is to do the crushing or grinding. The preparation is to be administered at an auspicious moment, and its curative power sometimes to be enhanced by not only administering it internally or externally but also by applying it as an amulet.<sup>16</sup> In many Babylonian prescriptions we find almost word-for-word parallels for these practices of herbalistry collected by Armand Delatte in his *Herbarius*.<sup>17</sup>

This may be more than simple coincidence. To mention in passing, some later herbalist practices indeed seem to preserve an echo of the Babylonian ones; witness the eighth-century Arabic work known as "Nabatean Agriculture"<sup>18</sup> which reports that certain medicinal plants were introduced by several, named, kings of Babylonia. And in fact some Babylonian medical texts attribute one or another prescription to such famous kings of the past as Hammurabi or Narām-Sin.<sup>19</sup>

I will here confine myself to those practices and procedures that are placed under astral influence. The most telling of these is the instruction, translated in the *CAD* in one of its more rationalist moments, "to let the preparation stand overnight." The original has, of course, "you let it spend the night in the stars." This phrase strikingly corresponds to the Greek verb *astronomeîn*, which can be rendered in German as "*besternen*" but for which I could find no adequate English verb.

Usually the instruction is not specific, and mentions only "the stars" in general, or even, in the singular, "the star," a feature suggesting that the Akkadian phrase had become an idiom similar to the Greek *astronomeîn*. In some instances, nevertheless, a particular star or constellation is named. Most often the star to which the medication is exposed overnight is the Goat constellation, that is, the same Lyra that we have had occasion to note earlier. This is not surprising since the Goat star is identified with the goddess of healing, Gula.

<sup>16</sup> See *CAD* sub *mêlu*, *takšîru*.

<sup>17</sup> Armand Delatte, *Herbarius* (Académie Royale de Belgique, Classe des Lettres. Mémoires. Collection in 8° Deuxième série, LIV/4 (1961)).

<sup>18</sup> D. Chwolson, *Über die Überreste der altbabylonischen Literatur in arabischen Übersetzungen* (St. Petersburg, 1859) p. 42.

<sup>19</sup> Hammurabi, Köcher, *BAM* 159 iv 22; strings of amulet stones to Narām-Sin, *AMT* 7,1 iii 6 and parallels Köcher, *BAM* 372 ii 5, 357:5, 376 iv 8; see F. Köcher, "Ein verkannter neubabylonischer Text aus Sippar," *AfO* 20 (1963) 157ff.; cf. also von Weiher, *Uruk* No. 50:12.

The star which is to irradiate the preparation so exposed may then be addressed with a prayer asking it to make the medication efficacious. The Goat star is also invoked in a long prayer in a recently published ritual from Uruk in which amulet stones and phylacteries are exposed to irradiation by Lyra.<sup>20</sup> Besides the Goat star, the most frequently invoked constellation is Ursa Major—the Big Dipper—, under its Mesopotamian name Wagon star, a name also used by the Hungarians and many Central Asian peoples.<sup>21</sup> The Wagon is frequently addressed for other purposes too. One prayer may ask for victory in battle; another for a mantic dream or some other favorable portent:

"O Wagon star, heavenly Wagon! Your yoke is Ninurta, your pole is Marduk, your axles are the two heavenly daughters of Anu. You rise in Assur, you turn toward Babylon. Let a dream bring me a sign whether so-and-so, son of so-and-so, will become healthy and well!"

Obviously, a nocturnal ritual invoking the Wagon can be performed any day of the year, since Ursa Major is a circumpolar constellation and thus never sets or, as the Babylonians put it, "It stays in the sky all year." Still, for one magic purpose, common in the Greek papyri, to bring a girl to her lover,<sup>22</sup> I have not found evidence in the cuneiform texts, even though the Wagon star is associated, at least in the celestial omen texts, with Venus, and so is the previously mentioned Goat star. But then very few love charms were written down in Mesopotamia; even the just-mentioned rituals in which the Wagon star is conjured to provide favorable omens found their way into the written corpus exceptionally only, since they operate on the popular, fortune-telling level. I might even conjecture that the prayers to the stars that explicitly ask them to make the medication more efficacious would not have survived had they not been cited in such a scientific corpus as the medical texts.

For example, you address a prayer to a star simply called the "first star," a name elsewhere designating the tip of the Wagon's pole, that is, of the Dipper's handle; after having offered it a sacrifice, you recite:

<sup>20</sup> von Weiher, *Uruk* No. 22.

<sup>21</sup> J. Erdödi, "Finnisch-Ugrische Gestirnnamen: Ein Beitrag zur Frage der Kultursphären," *Annales Universitatis Scientiarum Budapestinensis de Rolando Eötvös nominatae* 8 (1968) 105–21.

<sup>22</sup> K. Priesendanz, *Papyri Graecae Magicae I and II* (Stuttgart: Teubner, 1973<sup>2</sup> and 1974<sup>3</sup>), e.g., XII 376ff.

"O star, who illuminates the darkness, who surveys the world from the midst of the heavens! In this night I kneel before you; decide my case, give me a verdict. Let these herbs wipe out the evil that afflicts me."<sup>23</sup>

The Wagon and the Goat are not the only constellations invoked in medicine. Medical texts also contain addresses to the star Sirius, to the Yoke star—a constellation roughly equivalent to our Boötes—, to the Scorpion, to Orion, and to Centaurus. One might expect to find similar prayers to Sagittarius, Gemini, or Jupiter, since they too are mentioned occasionally as being at the root of the illness, as are some of the constellations actually addressed.

These stars may have brought the illness upon the sufferer simply because, as the Babylonians believed, illness drizzled down from the udders of heaven or rained down from the stars<sup>24</sup> as well as sprang up from the bowels of the earth.<sup>25</sup> In particular cases, however, these very constellations are known to have been instrumental in operations of black magic aimed at inflicting the illness upon the patient. It appears, then, that astral influence was also sought in black magic, in casting a spell, a fourth use of astrology, about which, perhaps fortunately at this hour, I cannot speak since, with a single exception, black magic texts are not attested in the cuneiform material.

I would just like to mention in closing, *one* magic use, so widespread later on, for which Babylonian texts contain early evidence, and that is the preparation of amulets and magical figurines. I can be brief, because I spoke about this topic at some length last year at the symposium honoring our past president, Edith Porada. The sources for this magic use of astrology are again medical texts, which may be one reason why the references to astral magic have so far gone unnoticed, not to speak of the understandable assumption that the invocations of sun and moon in these magical-medical texts are simply prayers to the two deities, the sun god, Šamaš, and the moon god, Sin.

I do not claim that every prayer to Sin and Šamaš is an appeal for lunar or solar irradiation, just as I do not hold that invocations of Ištar and Nabû in reality seek the benefic influence of Venus and Mercury; in other words, I do not intend to lead you astray into astral

religion. Nevertheless, we are bound to consider such prayers as appeals to the planetary aspect of the deity addressed when their concern is with establishing a favorable moment for making magic means more efficacious, a moment established with reference to celestial movements, however unsophisticated astronomically.

I have mentioned earlier that some operations, mainly connected with the gathering of herbs, must be carried out on a moonless night. I should have said, in more precise terms, at the time of the conjunction of sun and moon, that is, the day of the neomenia, as the texts expressly tell us. It is, however, not only the day of the neomenia that is so singled out but also the time of the opposition of sun and moon. This is clearly stated in a text which prescribes a ritual "on the fifteenth day, when moon and sun are equally present." Before the patient is to address first the moon and then the sun, he enters a reed hut, faces north, and makes libations to the moon toward the west and to the sun toward the east. We have here, then, another dawn ceremony, simultaneously invoking the full moon setting in the west and the sun rising in the east.<sup>26</sup>

In another ritual the figurine is exposed by day to the sun and, at night, to the stars; there are similar directives in several other texts, and we will surely find more now that we know what we are looking for.

Obviously, rituals involving the new moon's day and the full moon do not require astronomical sophistication; nevertheless, we must not forget that it is precisely these lunar phases that were observed and pre-calculated in order to predict possible dates for lunar or solar eclipses. Preoccupation with the celestial bodies led in the direction of astronomy on the one hand, and of elaborate astral magic on the other; both achieved their greatest flourishing after Mesopotamian civilization had ceased. Nor does Mesopotamia document the origins: when cuneiform texts set in, we are already far from the beginnings of astrology; in no way can we find the "firsts" of man's intellectual history, yet Babylonian astral concerns are part of intellectual history. The scholars, more qualified than I, who have traced the ways in which Babylonian concepts and parameters have been transmitted to Greek, Arabic, and Indian astronomy and astrology, have provided a model for tracing connections in various domains of history. Our job, as philologists, is to help provide those who would follow this model with material from the sources that we master best.

<sup>23</sup> Köcher, *BAM* 480 iii 52ff.

<sup>24</sup> Oppenheim, "Man and Nature in Mesopotamian Civilization," *Dictionary of Scientific Biography*, vol. 15 (New York, 1977) 640; see also *JCS* 9 8ff.

<sup>25</sup> Ludlul II.

<sup>26</sup> Köcher, *BAM* 323:93ff. // 228:28ff.